

# REPORT ON OIL ENGINE MACHINERY.

No. 5384

3 DEC 1934

Received at London Office

Date of writing Report 29<sup>th</sup> October 1934 When handed in at Local Office

29/10/1934 Port of Yokohama

Survey held at Yokohama & Uraga

Date, First Survey 11<sup>th</sup> April 1933

Last Survey 24<sup>th</sup> October 1934

Number of Visits 193

74 on the Single Triple Quadruple Screw vessel MV "NAKO MARU"

Tons Gross 7139 Net 4272.5

built at Uraga By whom built Uraga Dock Co Ltd Yard No. 388 When built 1934-10  
engines made at Yokohama By whom made Yokohama Dock Co Ltd Engine No. 4703 When made 1934  
monkey Boilers made at Uraga By whom made Uraga Dock Co Ltd Boiler No. - When made 1934  
rake Horse Power 6700 Owners Nippon Yusen K. K. Port belonging to Tokyo  
m. Horse Power as per Rule 1857 Is Refrigerating Machinery fitted for cargo purposes Yes Is Electric Light fitted Yes  
rade for which vessel is intended all seas.

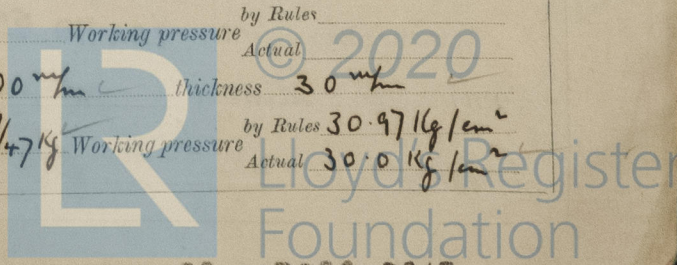
**ENGINES, &c.**—Type of Engines M.A.N. Airless Injection 2 or 4 stroke cycle 2 Single or double acting double  
maximum pressure in cylinders 45 kg/cm<sup>2</sup> Diameter of cylinders 700 mm Length of stroke 1200 mm No. of cylinders 7 No. of cranks 7  
an of bearings, adjacent to the Crank, measured from inner edge to inner edge 1090 Is there a bearing between each crank yes  
volutions per minute 105 Flywheel dia. 2300 mm Weight 8670 kg Means of ignition Airless Kind of fuel used Heavy Oil  
rank Shaft, dia. of journals as per Rule app<sup>d</sup> fm. Crank pin dia. 500 mm Crank Webs Mid. length breadth 790 mm Thickness parallel to axis 320 mm  
as fitted 500 mm Mid. length thickness 320 mm shrunk Thickness around eyehole 222.5 mm  
lywheel Shaft, diameter as per Rule app<sup>d</sup> fm. Intermediate Shafts, diameter as per Rule app<sup>d</sup> fm. Thrust Shaft, diameter at collars as per Rule app<sup>d</sup> fm.  
as fitted 500 mm as fitted 430 mm as fitted 455 mm  
ube Shaft, diameter as per Rule app<sup>d</sup> fm. Screw Shaft, diameter as per Rule app<sup>d</sup> fm. Is the tube shaft fitted with a continuous liner yes  
as fitted 470 mm  
ronze Liners, thickness in way of bushes as per Rule app<sup>d</sup> fm. Thickness between bushes as per rule app<sup>d</sup> fm. Is the after end of the liner made watertight in the  
as fitted 25 mm as fitted 25 mm  
propeller boss yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner  
If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive  
If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube  
shaft If so, state type Length of Bearing in Stern Bush next to and supporting propeller 2080 mm

Propeller, dia. 5486 mm Pitch 5170 mm No. of blades 4 Material Bronze whether Moveable No. Total Developed Surface 9.28 sq. feet  
Method of reversing Engines direct Air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Means of lubrication  
forced Thickness of cylinder liners 45 mm Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with  
non-conducting material lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine  
Cooling Water Pumps, No. Two Rotary Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes  
Bilge Pumps worked from the Main Engines, No. Diameter Stroke Can one be overhauled while the other is at work  
Pumps connected to the Main Bilge Line No. and Size 1-1x125 Z x 150 Z = 15 T/hr, 1-2 x 210 x 210 Z = 100 T/hr (Cargo oil pp) 1-110 T/hr Rotary (Ballast pp).  
How driven electric Motors Lubricating Oil Pumps, including Spare Pump, No. and size 2 x 65 T/hr Rotary  
Ballast Pumps, No. and size 1-110 T/hr Rotary Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge  
Are two independent means arranged for circulating water through the Oil Cooler yes

Pumps, No. and size:—In Machinery Spaces 3-90 mm 2-50 mm Tunnel Well 1-75 mm In Pump Room  
In Holds, &c. N=1, 2, 3 & 5 Holds 2-90 mm each; N=6 Hold 1-90 mm; A, B, C & D Deep Tanks 1-65 mm each.  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 1-140 Z, 1-200 Z  
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces  
led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges yes  
Are all Sea Connections fitted direct on the skin of the ship yes Are they fitted with Valves or Cocks yes  
Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates yes Are the Overboard Discharges above or below the deep water line above  
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel yes Are the Blow Off Cocks fitted with a spigot and brass covering plate yes  
What pipes pass through the bunkers How are they protected  
What pipes pass through the deep tanks Have they been tested as per Rule yes  
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times yes  
Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one  
compartment to another yes Is the Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from engine room  
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No. Nil No. of stages Diameters Stroke Driven by  
Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters M.P. 105 mm M.P. 360-305 Z Stroke 250 mm Driven by Aux. Diesel engine  
Small Auxiliary Air Compressors, No. 1 No. of stages 2 Diameters H.P. 45 L.P. 360-105 Z Stroke 95 Driven by Hand  
Scavenging Air Pumps, No. One Diameter Stroke Driven by electric motor  
Auxiliary Engines crank shafts, diameter as per Rule 166.5 mm as fitted 170 mm

**AIR RECEIVERS:**—Is each receiver, which can be isolated, fitted with a safety valve as per Rule yes  
Can the internal surfaces of the receivers be examined and cleaned yes Is a drain fitted at the lowest part of each receiver yes  
High Pressure Air Receivers, No. Cubic capacity of each Internal diameter thickness  
Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules Actual  
Starting Air Receivers, No. 2 Total cubic capacity 1059 cu. ft Internal diameter 1800 mm thickness 30 mm  
Seamless, lap welded or riveted longitudinal joint T.R. D.B.S. Material Steel Range of tensile strength 44/55 41/47 kg Working pressure by Rules 30.97 kg/cm<sup>2</sup> Actual 30.0 kg/cm<sup>2</sup>





# IS A DONKEY BOILER FITTED?

Is the donkey boiler intended to be used for domestic purposes only

yes.

If so, is a report now forwarded?

yes.

PLANS. Are approved plans forwarded herewith for Shafting 22/2/33, 20/3/33, Receivers 17/1/34

Donkey Boilers 24/5/33

General Pumping Arrangements 30/4/34, 22/8/33

Separate Tanks 11/7/33, 13/10/33, 19/10/33, 22/11/33

Oil Fuel Burning Arrangements 22/8/33

## SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes. see separate list

State the principal additional spare gear supplied

Spare Screw Shaft marked

U. T. L. 6  
LLOYD'S  
No 985  
G.H.M. 4/10/34

The foregoing is a correct description,

S. T. L. M. S. Manufacturer for U. D. C.

Dates of Survey while building  
During progress of work in shops - 12/4/34  
During erection on board vessel - 12/4/34  
Total No. of visits 193

Dates of Examination of principal parts - Cylinders 12/4/34, Covers 19/6/34, Pistons 11/4/34, Rods 11/4/34, Connecting rods 10/5/34  
Crank shaft 12/4/34, Flywheel shaft 12/4/34, Thrust shaft 16/8/34, Intermediate shafts 12/4/34, Tube shaft 12/4/34  
Screw shaft 27/5/34, Propeller 27/5/34, Stern tube 14/2/34, Engine seatings 2/8/34, Engines holding down bolts 24/2/34

Completion of fitting sea connections 22/6/1934, Completion of pumping arrangements 4/10/1934, Engines tried under working conditions 13/10/1934  
Crank shaft, Material Steel, Identification Mark H.A.B. 12.34, Flywheel shaft, Material Steel, Identification Mark K.K. 26.1.34  
Thrust shaft, Material Steel, Identification Mark LLOYD'S No 985, Intermediate shafts, Material Steel, Identification Marks M.K. 16/8/34  
Tube shaft, Material Steel, Identification Mark K.K. 13.2.34, Screw shaft, Material Steel, Identification Mark G.H.M. 24/5/34

Is the flash point of the oil to be used over 150° F. Yes.

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes.

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Yes.

If so, have the requirements of the Rules been complied with Yes.

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with No.

Is this machinery duplicate of a previous case Yes. If so, state name of vessel 'NAGARA MARU'

General Remarks (State quality of workmanship, opinions as to class, &c.) The machinery of this Vessel has been built and fitted on board the Vessel under Special Survey in accordance with the Rules and approved plans, material and workmanship good. The machinery was examined running on Shop trials and afterwards under full working conditions on board, with satisfactory results. The machinery of this Vessel is eligible in my opinion to have the record of + L. M. C. 10.34 in the Register Book.

T.R.F.B. 9/11 Air receivers 13.2.6  
The amount of Entry Fee £ 6-0-0  
Special £ 183-0-0  
Donkey Boiler Fee £ 5-5-0  
Travelling Expenses (if any) Yen 110.50

When applied for, 5-11-1934

When received, 5-1-1935

S. H. Macdonald

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 7 DEC 1934

Assigned

see J. E. Machy



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(The Surveyors are required to write on or below the space for Committee's Minute.)

Has the Steel been tested as required by the Rules? Yes.